

# Boundary value problem for a B-hyperbolic equation with an integral condition of the second kind

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## Abstract

© 2005 - 2015 JATIT & LLS. All rights reserved. In the paper we consider the boundary value problem with an integral condition of the second kind for a hyperbolic partial differential equation of the second order with the Bessel operator. We prove the uniqueness of the solution of the problem. In the paper we use the apparatus of the theory of partial differential equations and ordinary differential equations, methods of functional analysis, the apparatus of special functions. While solving the problem, we obtain some restrictive conditions on the functions that define the initial data of the problem. The solution of the problem is obtained explicitly, as a series, using the variable separation method. The substantiation of the solution is carried out by the method of spectral expansions. The work is theoretical.

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## Keywords

Bessel operator, Hyperbolic equation, Nonlocal integral condition